

# crazy about kites

## Activity 6

An important part of problem solving is to use testing to arrive at a good solution. In this activity, kids build a kite that's quite different from the one in *Go Fly a Kite*. After building two different kinds of kites, kids then design a kite of their own. As they design, build, test, and refine these kites, they apply their problem-solving and experimenting skills.

## Prepare Ahead

- Prepare a table with kite-making materials.
- Make a sample kite, following the directions on the kids' activity sheet.

## Lead the Activity

- 1 Introduce Ruff's challenge.** (5 minutes)  
Explain that today kids are going to build a kite very different from ones they've seen before. Show kids the sample kite. Discuss how it is similar to and different from kites they've seen before. Ask kids to brainstorm things they could change on a kite. Record their ideas on chart paper. (*Materials, shape, size, attachment point, decoration, angle at which it flies, the number of tails, and the tail's length or shape*)



- 2 Build kites.** (10 minutes) Hand out the activity sheets. Have kids make their kites, following the directions. Give a two-minute warning before the end of the building time. As an alternative, lead the group step by step through the instructions. Doing each step together can minimize confusion and everyone will finish at the same time.
- 3 Test kites by flying them.** (10 minutes) Have kids experiment with how fast they need to go to keep their kites flying. Challenge them to change one thing about their kites to make them fly better.
- 4 Discuss what happened.** (10 minutes) Have kids show the kites they made. Ask:
  - What makes a kite a kite? (*Likely answers include: kites move through the air; have a sail to catch air; need to be light; usually have a crosspiece, string, and a tail.*)
  - Why is it important to test, refine, and retest an idea? (*One answer is that an idea can usually be improved.*)

## Materials

- Activity sheet for each kid
- Sheets of 8.5 x 11 paper (colored paper is fun)
- Drinking straws (each kid needs 4)
- Paper streamers (each kid needs a 3-foot-long streamer)
- Scissors
- Tape
- Rulers
- Lightweight string

## National Science Education Standards

### Grades K-4

Physical Science:  
Properties of objects and materials  
Science as Inquiry:  
Understanding about scientific inquiry

Science and Technology:  
Abilities of technological design

### Grades 5-8

Earth and Space Science:  
Earth in the solar system  
Science and Technology:  
Abilities of technological design

**5 Build and test a new design.** (15 minutes)  
Have kids either modify a kite they've already built or create a new design that incorporates elements from other kite designs.

**6 Discuss what happened.** (5 minutes) Let kids show the kites they designed. Ask:

- What are some things you changed in your kite design?
- How did the changes affect your kite's flight?

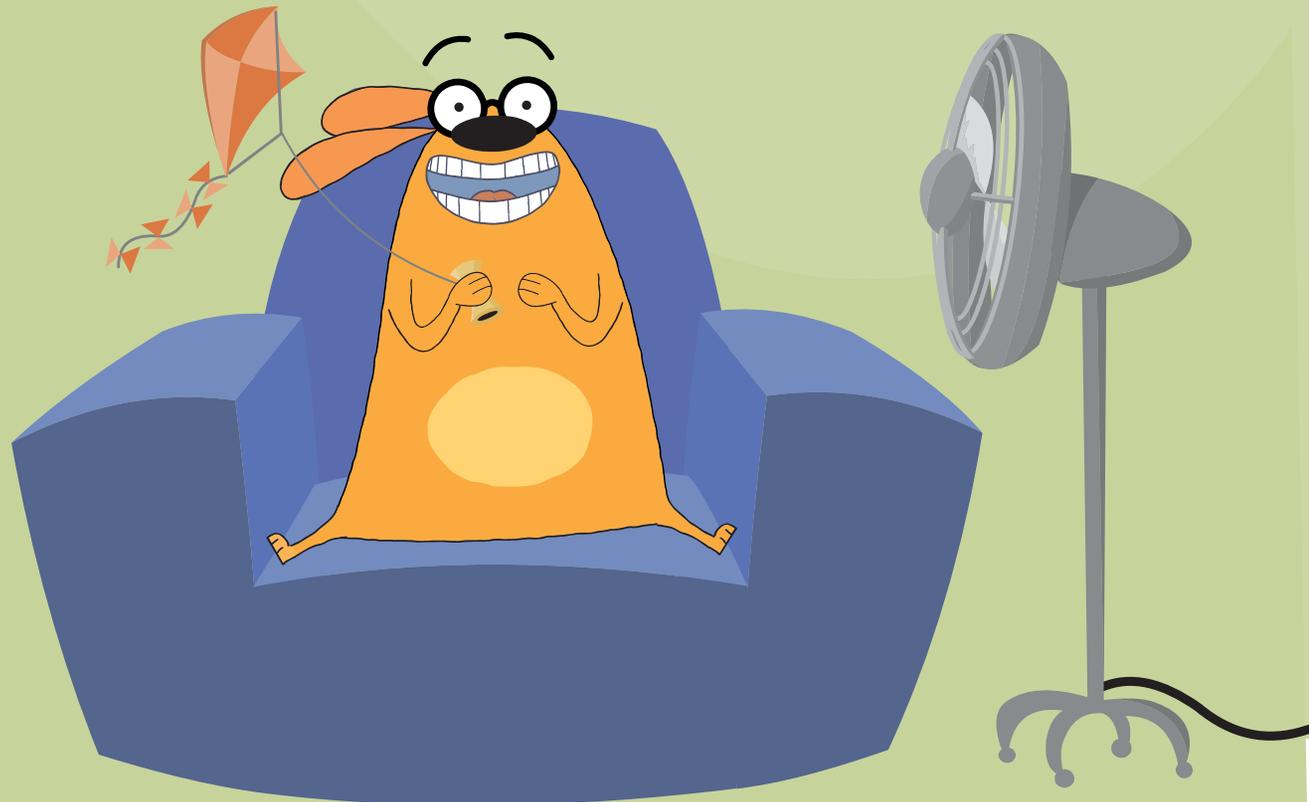
**7 Award points.** (5 minutes) Time to rack up some points. Gather as a group. Review the activity's key ideas by asking the following questions. Each one is worth 50 points. Whenever you hear an acceptable answer, award 50 points to the entire group.

- For each part of a kite, such as the sail, crosspiece, and tail, is there one best solution for how to make it, or are there many good solutions? (*Many good solutions!*)
- Name some things you can change about your kite that might affect how it flies. (*Answers will vary.*)
- If you change five things on your kite all at once and it flies a lot better, what problem do you suddenly have? (*You don't know which change or set of changes made the difference!*)

- How can you know for sure how a change affects a kite? (*Change only one thing at a time, and test it before making another change.*)
- Doing science and engineering involves making predictions, testing them (which includes doing something, making observations, and drawing conclusions), and sharing your results. Give an example of how we did these steps today. (*Answers will vary.*)

## Activity Tips

- Do this activity in a room with lots of space for moving around.
- Define a testing area where kids can move safely with their kites one at a time.
- To generate more wind for the kites, let kids walk quickly or skip.
- Kids' bodies will block the air a kite needs to fly properly. Have them start by holding their kites out to the side and walking or running with the kites away from their bodies.
- Tell kids to begin by holding the string lightly where it attaches to the kite and to let it out gradually when the kite tugs as it begins to fly.



# crazy about Kites



Today's challenge is to build a kite that looks different from ones you've seen before. Then, you'll change it and try to make it fly even better. Up, up, and away!

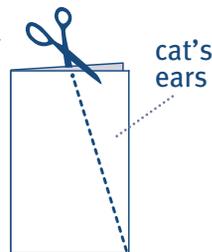
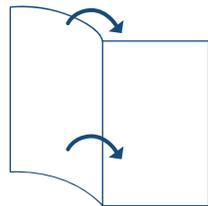
## What to DO

### 1 get what You need.

- 1 sheet of 8 1/2" x 11" copier paper
- 3 feet of paper streamer
- Scissors
- 4 straws
- Tape
- String
- Ruler

### 2 build Your kite.

- Fold the paper in half so its dimensions are 8 1/2 by 5 1/2 inches.
- Find the upper corner opposite the fold. Make a dot 2 1/2 inches in from this corner. Draw a line from this dot to the bottom corner. Cut along the line you drew, creating two "cat's ears."
- Unfold the paper. Tape the cat's ears to the lower edge of the kite.



- Tape the crosspieces from corner to corner. You may need to tape or fit two straws together to make the crosspieces long enough.

- Tape each end of the streamer onto the cat's ears to make the tail.

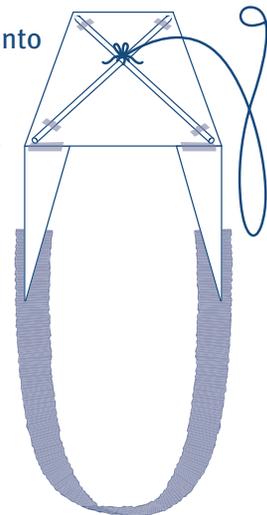
- Tie the string at the point where the two crosspieces meet.

### 3 FLY Your kite.

**FLY Your kite.** Think of ways to make your kite fly better. Revise your design by changing one thing about your kite. Test to see if the revised design flies better.

### 4 DeSIGN Your own kite.

Now that you know more about making a kite fly, create your own design. You can either modify a design you've already built or build one that uses ideas from other kite designs. Use all that you have learned to make a great kite!



### chew On This

Whether they're building a kite or designing a rocket, people use a similar process to figure out a problem:

- \* Identify a problem. *How can I make my kite fly better?*
- \* Brainstorm solutions. *One idea is to use a longer tail.*
- \* Test an idea. *The kite flew okay when it had a tail twice as long as its body.*
- \* Revise the design. *Let's try an even longer tail.*
- \* Share what you learned. *My kite flew best when its tail was four times as long as its body.*

# Dig Deeper

Investigate different ways of making things fly. The sky's the limit!

- \* Use different materials to make a kite. Try wrapping paper, tissue paper, or newspaper comics instead of copier paper. Use straws, sticks, or spaghetti for the crosspiece. Or use tinsel, string, ribbons, plastic bags, or rubber bands as tails.
- \* Find a book or Web site that shows you other kite designs. Designs called "sleds" and "flying nuns" fly really well and are easy to make.
- \* If you like making things that can fly, get these challenges from the ZOOM Web site at [pbskids.org/zoom/activities](http://pbskids.org/zoom/activities):

Glider shows you how to make a paper airplane that does tricks.

Hoop Glider shows you how to make a plane without wings.

Hovercraft shows you how to build an aircraft that travels on a cushion of air.



Watch FETCH! on PBS KIDS GO! (check local listings) and visit the FETCH! Web site at [pbskidsgo.org/fetch](http://pbskidsgo.org/fetch).

Okay, enough of this cat business. I'm going to start working on a kite shaped like me! With an incredibly sleek and aerodynamic body like mine, that should work, right?



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Fold

# Fetch!

# crazy about kites

My boss at the network just called. He wanted a show about kites and cats. But for some reason, he didn't like my idea of attaching cats *to* kites. So I think I've got an idea that's going to make him really happy. You're going to make a kite that's *shaped* like a cat! The cat lovers of the world (if there are any) are going to go crazy for this kite. So hop to it!

# GOOO FETCH!

